# CHAPTER 5
# DESIGN/CONSTRUCTION DOCUMENT & CONSTRUCTION STANDARDS

## SUB-CHAPTER 5.1
## BUILDING CODES, STANDARDS, REGULATIONS, AND PERMITS

### 5.1.1 RELATED STATUTORY AUTHORITY

1. SC Code § 6-7-830 requires the State to comply with local zoning ordinances.

2. SC Code § 6-9-110 exempts the State from any county, municipal or local ordinance or regulation that requires the purchase or acquisition of a permit, license, or other device used to enforce any building standard.

3. SC Code § 10-1-180 provides that all construction, improvement, and renovation of state buildings shall comply with all applicable standards as specified in the Manual for Planning and Execution of State Permanent Improvements Part II. The State Engineer shall determine the enforcement of the aforementioned codes and referenced standards on state buildings.

4. SC Code §§ 23-43-10 et. seq., "South Carolina Modular Buildings Construction Act," requires that all Modular Buildings be certified by the South Carolina Buildings Code Council.

5. SC Code §§ 10-5-210 et. seq., "South Carolina Accessibility Act," sets accessibility standards for public buildings.

6. The South Carolina Energy Independence Act of 2007 requires that all major facilities projects not exempted by the act be designed and constructed to achieve at least LEED Silver certification from the US Green Building Council or at least two globes certification using the Green Building Initiative's Green Globes rating system.

7. The South Carolina Energy Standards Act of 2009 as modified by 2012 Act 143 requires that all buildings be designed and constructed in compliance with the 2009 International Energy Conservation Code.

8. Governor's Executive Order No. 82-19 requires the State Engineer to assure compliance with the "State of South Carolina Building Standards in Floodplain Areas".

### 5.1.2 AUTHORITY HAVING JURISDICTION

The State Engineer is the authority having jurisdiction over state buildings and determines the enforcement and interpretation of codes and standards applicable to those buildings. The State Engineer is also the flood plain coordinator for state construction in flood hazard areas.

### 5.1.3 CODES AND STANDARDS

Starting January 1, 2011, State design and construction must comply with the codes and standards, along with their published errata and other requirements listed in this Chapter. If there is any conflict between the codes, standards, and/or regulations listed herein, the more stringent requirement controls. Designers and Agency reviewers should ensure they have the latest errata for indicated editions to International Codes, other codes and standards.

Codes editions in force at the time of first submittal govern throughout the project, unless: (1) Otherwise permitted by OSE; or (2) Design is delayed for more than 6 months and OSE adopts editions that are more current in the interim. No project may use a code that is older than one previous adopted edition.

In accordance with SC Code Ann §§ 1-34-10 thru 70 & § 10-1-180, OSE has adopted the following codes:

A. International Building Code (IBC), 2012 Edition,

B. International Existing Building Code (IEBC), 2012 Edition,

C. International Fire Code (IFC), 2012 Edition,

D. International Energy Conservation Code (IECC), 2009 Edition,

E. International Fuel Gas Code (IFGC), 2012 Edition,

F. International Mechanical Code (IMC), 2012 Edition,

G. International Plumbing Code (IPC), 2012 Edition, with the following insertions:
1. Section 305.6.1, insert "24" and insert "24"
2. Section 904.1, insert "8"

H. International Private Sewage Disposal Code (IPSDC), 2012 Edition,

I. International Property Maintenance Code (IPMC), 2012 Edition,

J. International Residential Code for One and Two Family Dwellings (IRC), 2012 Edition, with the following insertions:
1. P2603.6.1, insert "12" and insert "24"

K. International Wildland – Urban Interface Code (IUWIC), 2012 Edition,
Note: The IUWIC does not supersede existing statutory requirements.

L. International Code Council Performance Code (ICCPC), 2012 Edition upon State Engineer's written approval.

M. International Swimming Pool and Spa Code (ISPSC), 2012 Edition,
Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, ICC 300-2012 Edition

N. National Electrical Code (NEC) [NFPA-70], 2011 Edition

O. National Electrical Safety Code, IEEE-C2-2012 Edition

P. Latest edition of the American National Standards Institute, Inc. (ICC/ANSI) document A117.1, Accessible and Useable Buildings and Facilities. Note that this standard is the standard adopted by the South Carolina Accessibility Act but this requirement does not relieve the Agency or the design professional from the Federal Statutory requirements that design and construction comply with the Americans With Disabilities Act Accessibility Guidelines for Buildings and Facilities. See http://www.access-board.gov/adaag/html/adaag.htm

Q. State Fire Marshal rules, regulations, and policies. See http://www.llr.state.sc.us/firemarshal.asp

R. South Carolina Elevator, Code, & Regulations.[1]: See
http://www.llr.state.sc.us/Labor/ElevatorAmusement/index.asp?file=bungee.htm

S. State of SC Telephone Equipment Room and Communications/Data Systems Policies as formulated by the Division of State Information Technology (DSIT).

T. Governors executive Order No. 82-19 (April 1982) – State of SC Building Standards in Floodplain Areas.

U. The South Carolina Modular Buildings Construction Act S.C. Code § 23-43-10 et. Seq.

[1] The SC Elevator code references the American Society of Mechanical Engineers Safety Code for Elevators, Dumbwaiters, Escalators, and Moving Walks, and supplements thereto, ASME A17.1.

## 5.1.4 FLOOD HAZARD AREA DEVELOPMENT - Governor's Executive Order No. 82-19

### A. GENERAL REQUIREMENTS

The "State of South Carolina Building Standards in Floodplain Areas" requires compliance with the criteria in Title 44, Code of Federal Regulations, Parts 60.3 and 60.5. See http://www.gpoaccess.gov/cfr/index.html. Copies of these Parts are available from the State Coordinator's Office for the National Flood Insurance Program (NFIP).

### B. APPLICABLE DEFINITIONS

Flood hazard areas are those areas identified by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps (FIRMs) or Flood Hazard Boundary Maps (FHBMs) that are subject to inundation by a 100-year flood. (Any Zone A or Zone V is a flood hazard area.)

A "substantial improvement" is any reconstruction, rehabilitation, addition, or other improvement whose cost equals or exceeds 50% of the market value of the structure prior to improvement. Agencies and their A/E may not segment work to avoid meeting the definition of a "substantial improvement.

### B. PERMITTING

Where a project provides for new construction or substantial improvement to an existing structure in a flood hazard area, the Agency must, using OSE Form SE 900, apply to OSE to for a Permit to Develop in a Flood Hazard Area. The Agency should submit its application at the earliest opportunity, preferably at the time of schematic document submittal. The Agency must obtain this permit prior to starting construction.

If the Agency intends construct a non-residential structure with the first floor below the base flood elevation, the Agency must design the structure as a flood proof structure and submit a Floodproofing Certificate, FEMA Form 81-65, to OSE with the Design Documents Submittal.

### C. PERMIT REQUIREMENTS

The Agency, with the assistance of the A/E, must provide all information required on the Form SE-900 or designate it as not applicable. The Agency must include all required forms and certifications with the submittal to OSE. The Agency must submit the following certifications when required for structures constructed in a flood hazard area:

1. No-Rise Certification required for development in a regulatory floodway: A registered professional engineer must furnish the certification and supporting technical data.

2. Elevation Certification required for structures in an A-zone or V-zone: A registered land surveyor must furnish this certification using FEMA Form 81-31. Submit this form to OSE as soon as the lowest floor is completed.

3. Floodproofing Certificate (FEMA Form 81-65) for non-residential flood proofed structures in an A-zone: A registered professional engineer or architect must furnish this certification to OSE with the Form SE-900.

4. V-Zone Certification required for structures in a V-zone: A registered professional engineer or architect must furnish this certification, using the SC Department of Natural Resources form. Submit this certification to OSE with the Form SE-900.

The Agency and A/E may find these forms through the OSE website.

### D. PERMIT VARIANCE

Only the Floodplain Variance Board, at the request of OSE, may grant a variance permit to the Flood Hazard Area development requirements. If the Agency wants to pursue a variance, it must send a written request to the State Engineer that contains the following information:

1. The particular floodplain management standard which prevents the proposed construction or improvement;

2. The characteristics of the property or proposed structure which prevents compliance with the flood management standards;

3. The minimum reduction of standards which would be necessary to permit the proposed construction or improvement;

4. The particular hardship which would result if all standards were applied;

5. For Historic Structures, the determination that the proposed repair or rehabilitation of the historic structure will preclude the structure's continued designation as a historic structure and the variance is necessary to preserve the historic character and design of the structure; and

6. Any additional information requested by the State Engineer.

**E. FLOOD MAPS**

1. The Agency and A/E may purchase Flood Maps from FEMA at:

FEMA Map Service Center
PO Box 1038
Jessup, MD 20794-1038
Or http://store.msc.fema.gov/

Telephone: (800) 358-9616
Fax Number: (800) 358-9620

2. The Agency and A/E may review Flood Maps at the following locations:

State Coordinator's Office for the NFIP
Rembert C. Dennis Building
1000 Assembly Street
Columbia, SC 29201
(803) 734-9103

3. Flood maps for specific sites may be available for review at the local community planning, zoning or engineering office or at the local Natural Resources Conservation Service office.

**F. PUBLICATIONS**

The Agency and A/E may obtain all publications and forms at the following locations:

Federal Emergency Management Agency
PO Box 2012
Jessup, MD 20794-2012
Attn: Publications
Phone: (800) 480-2520
http://store.msc.fema.gov/

State Coordinator's Office for the NFIP
SC Department of Natural Resources
1000 Assembly Street
Columbia, SC 29201
Phone: (803) 734-9103 Fax: (803) 734-9106

**5.1.5 INFORMATION TECHNOLOGY REQUIREMENTS** SC Code Ann § 11-35-820

The Agency must notify the CIO of all construction projects involving repair, modification, or installation of building communications systems, including telephone equipment rooms at the following address:

Attn: Infrastructure Planning Manager
DSIT Telecommunications Division
1026 Sumter Street
Columbia, SC 29201
Telephone: (803) 898-8172

This notification should occur as early as possible in the project planning process to enhance coordination during design and construction and to minimize delays and rework.

## 5.1.6 EXISTING STRUCTURES - SPECIAL CONSIDERATIONS

### A. APPLICABLE CODE

The International Existing Building Code (IEBC), 2012, applies to the repair, alteration, change of occupancy, addition, relocation of all buildings.

### B. HAZARDOUS MATERIALS

The Agency should test for hazardous materials in any building or part of a building that it plans to repair or alter. The Agency must comply with all State and Federal Regulations regarding testing for, abating, handling, and disposing of hazardous materials.

### C. HISTORIC BUILDING MODIFICATIONS – SC Code Ann §§ 60-12-10 thru 60-12-90

An historic building is a building listed on National Register of Historic Places. South Carolina law encourages state agencies and institutions to preserve National Register-listed properties they own or lease by establishing a consultation process with the State Historic Preservation Office (SHPO). The process is designed to incorporate historic preservation concerns with the needs of state projects. Agencies are encouraged to consult with SHPO on properties that are eligible for listing on the National Register.

The Agency and A/E should prepare a plan of action for a project on an historic building using one or more of the four distinct standards of treatment of historic properties—Preservation, Rehabilitation, Restoration or Reconstruction. The Agency and A/E should use The Secretary of the Interior's Standards for the Treatment of Historic Properties and The Secretary of the Interior's Standards for Rehabilitation & Guidelines for Rehabilitating Historic Buildings in formulating the plan of action. With the Agency's and A/E's input, OSE, in conjunction with SHPO and other interested state agencies, will determine the requirements for the renovation of historic buildings. The Agency may request a meeting with OSE for this purpose prior to or concurrently with the submittal of the Schematic Design phase documents.

### D. SEISMIC REQUIREMENTS

When the Agency plans alterations to a building, the Agency must consult with OSE to determine if the IEBC requires a preliminary seismic evaluation. The Agency should obtain this determination before it concludes the fee negotiations with the selected A/E. When required by OSE, a structural engineer must perform the preliminary seismic evaluation of the existing building or structure(s) and prepare a report.

A preliminary seismic evaluation is a Tier 1 evaluation in accordance with ASCE 31, Seismic Evaluation of Existing Buildings (as referenced in the ICC). The preliminary evaluation must include the complete examination of all available documents pertaining to the design and construction of the building and an "on-site" examination of the structural system(s) to verify the building was constructed in accordance with the documents.

1. The structural engineer must base the Tier 1evaluation on the following minimum requirements:

    a) Except as set forth in (b) below, a Life Safety (LS) level of performance;
    b) If the facility is an "Essential Facility," an Immediate Occupancy (IO) level of performance (Category IV, Table 1604.5 of the IBC provides a listing of "Essential Facilities"); and
    c) When soil properties are unknown as to site class, the engineer must use Site Class D unless the engineer determines that Site Class E or F is likely. See IBC Chapter 16.

2. After performing a seismic evaluation, the structural engineer must prepare a final report that includes the following:
    a) The scope of the investigation;
    b) The site and building data including a general building description, structural system description (framing, lateral-force-resisting-system), floor & roof diaphragm construction, and basement and foundations systems;
    c) Nonstructural systems description (all nonstructural elements affecting seismic performance);
    d) Building Construction Type;
    e) Performance Level;
    f) Level of Seismicity;
    g) Soil Type

h) List of Assumptions: (material properties and site soil conditions); and
i) Findings: (a prioritized list of deficiencies)

The Agency must submit a copy of the preliminary seismic evaluation report to OSE at the Schematic Design phase. OSE, in consultation with the Agency, will determine the extent to which seismic retrofitting shall be included in the renovation project.

**E. ACCESSIBILITY BY THE PHYSICALLY DISABLED** - SC Code § 10-5-210 et. seq
If in the opinion of the A/E, the building cannot provide accessibility to the physically disabled due to technical unfeasibility, the A/E must provide, during Schematic Design submittal:

a) A prioritized list of deficiencies,
b) The reasons supporting a finding of technical unfeasibility, and
c) Design alternatives

After reviewing the Schematic Design, OSE may consider "technical infeasibility" as an acceptable rationale for less than full compliance.

**5.1.7 MODULAR BUILDINGS -** SC Code §§ 23-43-10 et. seq

Modular buildings are buildings of closed construction, other than mobile or manufactured homes, constructed off-site in accordance with applicable codes, and transported to the point of use for installation or erection.

Installation of modular buildings is construction work that must meet the same requirements as new construction. The codes cited in paragraph 5.1.3 of this Manual are applicable. The Agency and A/E should give specific attention design of foundations (for seismic and wind loading).

The Agency must comply with Chapter 9 of this Manual when moving state-owned modular buildings.

**5.1.8 PROHIBITED BUILDING MATERIALS**

**A. FIRE RETARDANT TREATED WOOD:** Due to the significant expense the State has incurred removing and replacing failed fire retardant treated wood in structural applications, the Agency may not use fire retardant treated wood, regardless of treatment process, in State buildings. However, with OSE approval, the Agency may use fire retardant treated wood in low humidity locations for non-structural purposes.

**B. HAZARDOUS MATERIALS:** The Agency may not use hazardous materials on state projects without prior approval from OSE even if the law allows such use.

**C. HIGH IMPACT RESISTANT GYPSUM WALLBOARD:** High impact resistant gypsum wallboard may not be used in State buildings unless prior approval is obtained from OSE. If OSE approves high impact resistant gypsum wallboard, the Agency must indicate its use in an appropriate location readily visible and approved by the Fire Authority having Jurisdiction.

**5.1.9 DESIGN RELATED CONSTRUCTION COORDINATION, PERMITS AND APPROVALS**

The Agency is responsible for obtaining all design and construction related permits and approvals from other authorities having jurisdiction over the project. State law requires the Agency to comply with local zoning ordinances as they affect the use and appearance of buildings. The Agency will need to contact other authorities, including local and state authorities, to obtain permit requirements. Table 5-14 provides a listing of design-related permits the Agency may be required to obtain.

The Agency must be sure and have the A/E incorporate the requirements of all authorities having jurisdiction into the construction documents. The Agency must either provide OSE with copies of all design related permits and approvals or with certification that the Agency has obtained them prior to applying for a building permit.

## 5.1.10 ENERGY CONSERVATION AND SUSTAINABLE CONSTRUCTION – SC Code Ann §§ 48-52-810 thru 860

All projects meeting the definition of a major facility project must be designed to achieve at least LEED Silver certification from the US Green Building Council or at least two globes certification using the Green Building Initiative's Green Globes rating system.

### A. MAJOR FACILITIES PROJECTS

Major facilities projects are:

1. State-funded projects for new construction in which the building to be constructed is larger than 10,000 gross square feet;

2. State-funded projects for renovation of a facility in which the renovation will cost more than 50% of the replacement value of the facility or the renovation involves a change in occupancy; and

3. State-funded projects for commercial interior tenant fit-out where the leasable area to be fitted out is greater than 7,500 square feet.

### B. EXEMPTIONS

Major facilities projects do not include the following:

1. Any building that does not have conditioned space as defined by ASHRAE's Standard 90.1;

2. Any public school building (grades k – 12) as defined in SC Code § 59-1-50;

3. Any correctional facility constructed for the Department of Corrections, Department of Mental Health, or Department of Juvenile Justice;

4. Any building funded by the Department of Health and Environmental Control with the primary purpose of storing archived documents; or

5. Any building funded the State Ports Authority, the Coordinating Council for Economic Development, or the State Infrastructure Bank.

### C. SPECIAL CONSIDERATIONS FOR RENOVATION AND TENANT FIT-OUT PROJECTS

For renovation and commercial interior tenant fit-out projects meeting the definition of major facilities project, the Agency must analyze the project using a life cycle cost analysis of the projected capitol and operational cost over 30 years. The analysis must compare the costs and benefits of designing, constructing, maintaining, and operating the facility at (1) the LEED Silver standard or two globes standard, or better, with certification; (2) normal industry and regulatory standards; or (3) some standard between (1) and (2) that causes the project to be designed and constructed in a manner that achieves the lowest thirty-year life cycle cost. The Agency must include the 30 year life cycle cost analysis with their Phase II PIP Application.

### D. ENERGY PERFORMANCE REQUIREMENTS

1. MAJOR FACILITY PROJECT DESIGNED TO ACHIEVE TWO GLOBES CERTIFICATION: The A/E must design the project to earn at least 20% of the available points for energy performance under Green Globe's rating system "C.1.1 Energy Consumption."

2. MAJOR FACILITY PROJECT DESIGNED TO ACHIEVE LEED SILVER CERTIFICATION: The A/E must design the project to earn at least 40% of the available points for energy performance under UBGC's rating system "EA Credit 1: Optimize Energy Performance."

### F. WAIVER OF ENERGY PERFORMANCE REQUIREMENTS

The Agency may request a waiver of the Energy Performance requirements in Part 5.1.10D from OSE. Waiver requires OSE's determination that meeting the energy performance requirements is not economically feasible. If the

Agency desires a waiver, the Agency must submit to OSE documentation showing that the incremental cost of achieving the energy performance requirements cannot be amortized over a period of 20 years.

**G. REPORTING REQUIRMENTS**

The Agency must make the following reports to the Budget and Control Board:

1. Upon final completion of a project: Submit to the Energy Office a description of all potential environmental benefits, including, but not limited to, water resources savings and reduction of water waste. The Agency may obtain this information from the facility designer.
2. Upon certification of a facility: Submit to OSE the level of LEED or Green Globe certification achieved for facility;
3. Annually Submit to the Energy Office:
    a. A report of actual savings in energy cost for all major facilities designed and constructed to the standards of the Energy Conservation and Sustainable Construction Act;
    b. Any conflicts or barriers that hinder the effectiveness of the Energy Conservation and Sustainable Construction Act.
4. In the 5th, 10th, and 15th year following certification of a facility: Submit to the Energy Office a report on the ability of the facility to continue to operate at the standard to which it was originally certified.

## 5.1.11 GREEN PURCHASING INITIATIVE

South Carolina has adopted a Policy encouraging Green Purchasing. This Part includes a statement of that policy and standards in the policy specific to construction. The entire policy is available at http://procurement.sc.gov/PS/agency/PS-agency-green-purchasing.phtm. Agencies should consider this policy and discuss it with their Architect-Engineer for purposes of incorporating sustainable construction practices in all of their projects

**A. STATEMENT OF POLICY**

South Carolina state government seeks to further reduce the environmental and human health impacts of its operations by integrating environmental considerations into its procurement process.

South Carolina state government is committed to environmentally preferred purchasing in recognition of the need to more efficiently use natural resources, reduce waste, save money, sustain markets for materials collected in recycling programs and protect South Carolina's environment, economy and the quality of life of all its citizens.

Therefore it is the policy of the state of South Carolina to endeavor to:

- improve or implement green purchasing practices that reduce waste and result in the purchase of fewer products, when practicable and cost effective, without reducing the safety or quality of the products;
- make purchasing decisions with the understanding and consideration of the environmental impact and life cycle cost of a product or service during its manufacture, transport, use and end-of-life management;
- identify and purchase products and services that prevent pollution, eliminate or reduce toxins, conserve energy and water, contain recycled-content material and minimize environmental impacts; and
- purchase from South Carolina businesses to minimize transportation costs and emissions, when it can be done with adequate competition and without compromise of performance or quality of products or services.

This Policy applies to all South Carolina state agencies and publicly funded colleges and universities and others defined as governmental bodies per SC Code Section 11-35-310(18) (www.scstatehouse.gov/code/titl11.htm). Vendors, contractors and grantees will comply with applicable sections of this policy for products and services that are provided to the state of South Carolina. All purchases under this policy are subject to local, state or federal requirements as applicable. Nothing in this policy should be construed as requiring a state agency or publicly funded college or university to procure products that do not perform according to their intended use or reduce safety, quality, or effectiveness.

**B. STANDARDS SPECIFIC TO CONSTRUC TION**

Green Building Practices - Consider a whole-systems approach to the design, construction, and operation of buildings and structures that help mitigate the environmental, economic, and social impacts of construction, demolition, and renovation. Green Building Practices such as those described in the LEED or Green Globe Rating Systems, recognize the relationship between natural and built environments and seeks to minimize the use of energy, water, and other natural resources and provide a healthy productive environment.

1. GREEN BUILDING CONSTRUCTION

a. Consider the use of on-site renewable energy such as solar, wind, geothermal and biomass to reduce impacts of fossil fuel use.

b. Consider deconstruction and re-use of materials or purchase previously used or salvaged building materials to reduce waste and the need for virgin materials.

c. Reduce the depletion of finite raw materials by using rapidly renewable materials such as bamboo, wool, cotton, linoleum and cork.

d. Maximize the use of natural lighting in buildings to avoid the use of artificial lighting.

e. Develop a plan for measurement of building water and energy consumption to provide ongoing accountability of actual usage.

f. When renovating space, plan for flexibility and future change by using easily moved walls, outlets, etc.

g. Consider short-term and long-term costs in specifying material and equipment. This includes an evaluation of the total costs expected during the life of the material and equipment.

2. GREEN LANDSCAPING

a. Provide for recycled-content materials for hardscape and landscape structures.

b. Reduce water used for irrigation by using plants that are native to the area where they are planted and drought-tolerant plants that require minimal or no watering once established.

c. Reduce water pollution and heat-island effect by reducing the amount of impervious surfaces in the landscape. Permeable substitutes such as pervious concrete or pavers are preferred for walkways, patios, driveways and low-volume traffic areas.

d. Reduce light pollution by only lighting areas to the level required for safety and comfort.

**5.1.12 REQUIRED INSPECTION SERVICE**

The Agency must provide for the construction inspection services required by Chapter 1 of each International Code Council Series of Codes adopted in 5.1.3 above and special inspection services required in Chapter 17 of the IBC. A listing of inspection Service firms on statewide term contract is located at http://procurement.sc.gov/PS/agency/PS-ose-contracts.phtm.